

WHAT IS CLAIMED IS

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1. An information processing method for sharing storage areas of respective storage apparatuses of a plurality of servers connected to a communication network thereamong, comprising the steps of:

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a) registering the storage areas of the respective storage apparatus of the plurality of servers in a management server;

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b) managing collectively in said management server the respective storage areas of the storage apparatuses of the respective servers thus registered;

c) requesting allocation of the storage area of the storage apparatus thus managed;

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d) the management server allocating a predetermined one of the storage areas of the storage apparatuses collectively managed in response to the allocation request;

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e) requesting the management server to mount the storage area of the storage apparatus thus allocated;

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f) the management server mounting the storage area of the storage apparatus allocated in said step d) in response to the mounting request, and transmitting mounting information which indicates this matter as a response;

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g) requesting the server, to which said storage area thus mounted belongs, to access said storage area, according to said mounting information thus transmitted; and

h) said server which thus receives the access request accessing the storage area of its own,

and transmitting an accessing result as a response.

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2. The information processing method as claimed in claim 1, further comprising the steps of:

i) requesting said management server to unmount the storage area once mounted in said step f); and

j) said management server unmounting said storage area in response to the unmounting request made in said step i).

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3. The information processing method as claimed in claim 1, wherein:

different storage area usage ways are applicable in the collective management of the registered storage areas of the storage apparatuses in said management server.

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4. The information processing method as claimed in claim 3, wherein:

said different storage area usage ways comprise at least one of a single usage way, an integrated usage way, a multiplicate usage way and a divided usage way.

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5. The information processing method as claimed in claim 1, wherein:

the collective management of the registered storage areas of the storage apparatuses in said management server is performed in said step b) in such a manner that the storage areas are managed as virtual storage areas logically.

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6. The information processing method as claimed in claim 1, wherein:

the accessing operation in said step h) comprises at least an initialization operation, information writing operation, information reading operation, an information searching operation and an information deleting operation.

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7. The information processing method as claimed in claim 1, wherein:

said plurality of servers and respective storage apparatuses comprise direct attached storages respectively.

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8. An information processing system for sharing storage areas of respective storage apparatuses of a plurality of servers connected to a communication network thereamong, comprising:

a registering part registering the storage

areas of the respective storage apparatus of the plurality of servers in a management server;

5 a managing part managing collectively in said management server the respective storage areas of the storage apparatuses of the respective servers thus registered;

an allocation requesting part requesting allocation of the storage area of the storage apparatus thus managed;

10 an allocating part in the management server allocating a predetermined one of the storage areas of the storage apparatuses collectively managed, in response to the allocation request;

15 a mounting requesting part requesting the management server to mount the storage area of the storage apparatus thus allocated;

20 a mounting part in the management server mounting the storage area of the storage apparatus allocated in said step d) in response to the mounting request, and transmitting mounting information which indicates this matter as a response;

25 an access requesting part requesting the server, to which said storage area thus mounted originally belongs, to access said storage area of its own, according to said mounting information thus transmitted; and

30 an accessing part in said server which thus receives the access request accessing the storage area of its own, and transmitting a result of the access as a response.

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9. The information processing system as claimed in claim 8, further comprising:

an unmounting requesting part requesting said management server to unmount of the storage area once mounted by said mounting part; and

an unmounting part in said management  
5 server unmounting said storage area in response to the unmounting request made by said unmounting requesting part.

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10. The information processing system as claimed in claim 8, wherein:

different storage area usage ways are  
15 applicable in the collective management of the registered storage areas of the storage apparatuses performed by said managing part of said management server.

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11. The information processing system as claimed in claim 10, wherein:

the different storage area usage ways  
25 applicable in the collective management of the registered storage areas of the storage apparatuses performed by said managing part of said management server comprise at least one of a single usage way,  
30 an integrated usage way, a multiplicate usage way and a divided usage way.

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12. The information processing system as claimed in claim 8, wherein:

the collective management of the registered storage areas of the storage apparatuses performed by said managing part of the management server is performed in such a manner that the  
5 storage areas are managed as virtual storage areas logically.

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13. The information processing system as claimed in claim 8, wherein:

the accessing operation performed by said accessing part comprises at least an initialization  
15 operation, an information writing operation, an information reading operation, an information searching operation and an information deleting operation.

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14. The information processing system as claimed in claim 8, wherein:

25 said plurality of servers and the respective storage apparatuses comprise direct attached storages respectively.

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15. An information processing apparatus comprising:

35 a registering part registering a storage area of its own in a management server connected with a communication network;

an allocation requesting part requesting

said management server to allocate a storage area managed by said management server; and

5 a mounting requesting part requesting said management server to mount the storage area of the storage apparatus which has been allocated in response to the allocation request;

10 an access requesting part requesting, according to mounting information returned from the management server in response to the mounting request, another information processing apparatus which has said storage area mounted by said management server in response to said mounting request, to access said storage area.

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16. The information processing apparatus as claimed in claim 15, further comprising an unmounting requesting part requesting said management server to unmount of the storage area once mounted by said management server according to the mounting request.

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17. The information processing apparatus as claimed in claim 15, wherein:

30 an access operation requested by said access requesting part comprises at least an initialization operation, an information writing operation, an information reading operation, an information searching operation and an information  
35 deleting operation.

18. The information processing apparatus as claimed in claim 15, comprising a direct attached storage with its own storage apparatus.

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19. An information processing apparatus comprising:

10 a managing part collectively managing storage areas registered, which storage areas belong to storage apparatuses of a plurality of information processing apparatuses connected with a communication network, respectively;

15 an allocating part allocating a predetermined one of the storage areas collectively managed by said managing part, in response to an allocation request made by a first information processing apparatus of the plurality of information processing apparatuses; and

20 a mounting part mounting the storage area of the storage apparatus of a second information processing apparatus of the plurality of information processing apparatuses allocated in response to a mounting request made by said first information processing apparatus, and transmitting mounting information indicating this matter to said first information processing apparatus as a response.

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20. The information processing apparatus as claimed in claim 19, further comprising:

35 an unmounting part unmounting, in response to an unmounting request given by the first information processing apparatus, the storage area



of the second information processing apparatus once mounted by said mounting part.

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21. The information processing apparatus as claimed in claim 19, wherein:

different storage area usage ways are  
10 applicable in the collective management of the registered storage areas of the storage apparatuses performed by said managing part.

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22. The information processing apparatus as claimed in claim 21, wherein:

the different storage area usage ways  
20 applicable in the collective management of the registered storage areas of the storage apparatuses performed by said managing part comprise at least one of a single usage way, an integrated usage way, a multiply usage way and a divided usage way.

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23. The information processing apparatus  
30 as claimed in claim 19, wherein:

the collective management of the registered storage areas of the storage apparatuses performed by said managing part is performed in such a manner that the storage areas are managed as  
35 virtual storage areas logically.

24. A computer readable information recording medium storing therein a program causing a computer to execute the following steps of:

- 5 a) registering a storage area of its own storage apparatus in a management server connected with a communication network;
- b) requesting said management server to allocate a storage area managed by said management server; and
- 10 c) requesting said management server to mount the storage area of the storage apparatus which has been allocated in response to the allocation request;
- d) requesting, according to mounting
- 15 information returned from the management server in response to the mounting request, another information processing apparatus which has said storage area mounted by said management server in response to said mounting request, to access said
- 20 storage area.

25 25. The computer readable information recording medium as claimed in claim 24, wherein said program further causes the computer to execute the step of:

- e) requesting said management server to
- 30 unmount of the storage area once mounted by said management server according to the mounting request.

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26. The computer readable information recording medium as claimed in claim 24, wherein:

an access operation requested in said d) comprises at least an initialization operation, an information writing operation, an information reading operation, an information searching operation and an information deleting operation.

27. The computer readable information recording medium as claimed in claim 24, wherein: said computer and the storage apparatus thereof comprise a direct attached storage.

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28. A computer readable information recording medium storing therein a program causing a computer to execute the steps of:

a) collectively managing respective storage areas registered, which storage areas belong to storage apparatuses of a plurality of information processing apparatuses connected with a communication network, respectively;

b) allocating a predetermined one of the storage areas collectively managed in said step a), in response to an allocation request made by a first information processing apparatus of the plurality of information processing apparatuses connected with the communication network; and

c) mounting the storage area of the storage apparatus of a second information processing apparatus of the plurality of information processing apparatuses allocated in response to a mounting request made by the first information processing apparatus, and transmitting mounting information

indicating this matter to said first information processing apparatus as a response.

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29. The computer readable information recording medium as claimed in claim 28, wherein said program further causes the computer to execute the step of:

10 d) unmounting, in response to an unmounting request given by the first information processing apparatus, the storage area of the second information processing apparatus once mounted in  
15 said step c).

20 30. The computer readable information recording medium as claimed in claim 28, wherein:  
different storage area usage ways are applicable in the collective management of the registered storage areas of the storage apparatuses  
25 performed in said step a).

30 31. The computer readable information recording medium as claimed in claim 30, wherein:  
said different storage area usage ways applicable in the collective management of the registered storage areas of the storage apparatuses  
35 performed in said step a) comprise at least one of a single usage way, an integrated usage way, a multiply usage way and a divided usage way.

32. The computer readable information  
recording medium as claimed in claim 28, wherein:  
the collective management of the  
registered storage areas of the storage apparatuses  
5 performed in said step a) is performed in such a  
manner that the storage areas are managed as virtual  
storage areas logically.